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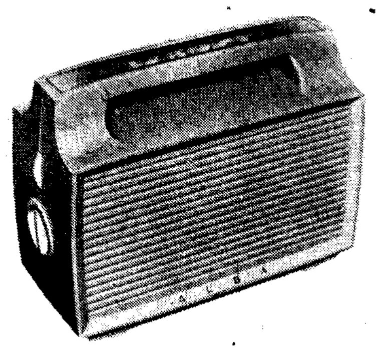
Supplement to Wireless & Electrical Trader, 1 June 1957

"TRADER" SERVICE SHEET

1303

ALBA 202 & 303

2-band A.C./D.C./A.D. and A.D. Portables



EMPLOYING a ferrite rod internal aerial, the Alba 202 "Happy Wanderer" is a 2-band portable designed to operate from all-dry batteries or from A.C. or D.C. mains of 200-250V. It is fitted with 4 Mullard valves. The waveband ranges are 190-550m and 1,200-1,800m.

Model 303 employs a similar chassis to that used in the 202, but is designed to operate from all-dry batteries only. Differences between the two models are explained in "General Notes."

Release dates and original prices: 202, *October* 1956, £12 10*s* 2*d*; 303, *May* 1957, £10 12*s* 3*d*. *Purchase tax and batteries extra.*

CIRCUIT DESCRIPTION

Tuned internal aerial input by **L1, C5** (M.W.) or **L1, L2, C5** (L.W.) to heptode valve **V1** operating as frequency changer with electron coupling.

Oscillator grid coil **L5** is tuned by **C11** for both M.W. and L.W. operation. Parallel trimming by **C12, C13** (M.W.) and **C12, C13, C15** (L.W.); series tracking by **C14, C16** (M.W. and L.W.). Reaction coupling from oscillator anode via **L6** and the common impedance of **C16.**

V2 is a variable-mu R.F. pentode operating as intermediate frequency amplifier with tuned transformer couplings **L3, L4** and **L7, L8.**

Intermediate frequency 470 kc/s.

Diode signal detector is part of diode pentode valve **V3.** Audio frequency component in its rectified output is developed across volume control **R9,** and is passed via **C24** to **V3** pentode section, which operates as audio amplifier. I.F. filtering by **C20, R7, C22.**

D.C. component developed across **R9** is fed back as bias to **V1** and **V2,** giving automatic gain control. Bias for **V3** is derived from the "contact" potential developed across high-value grid leak **R11.**

Resistance-capacitance coupling by **R15, C27** and **R17** between **V3** and pentode output valve **V4.** Tone correction by **C28.**

Grid bias for each valve is decided by the position of its filament in the filament chain and the point to which its control grid circuit is returned.

For mains operation switches **S4(M), S6(M)** and **S8(M)** close. H.T. current is supplied by half-wave metal rectifier **MR1,** with smoothing by **R24, R25, R26** and electrolytic capacitors **C31, C32.** Filament current is derived from the H.T. circuit and is fed via potential divider **R21, R22, R23** to the filament circuit. For battery operation switches **S3(B), S5(B)** and **S7(B)** close.

GENERAL NOTES

Switches.—S1, S2 are the waveband switches ganged in a single rotary unit on the side of the chassis (location reference D4). The switch contacts are identified in the diagram in the centre of column 1 overleaf. With the waveband control knob turned anti-clockwise for L.W. operation, switch **S2** closes. **S2** opens and **S1** closes for M.W. operation.

S3(B)-S8(M) are the mains/battery change-over switches ganged in a single rotary unit on the side of the chassis (location reference G4). The switch contacts are identified in the diagram in the centre of column 1 overleaf.

With the control knob turned fully anti-clockwise for mains operation, switches **S4(M), S6(M)** and **S8(M)** close as indicated by their suffix **(M).** With the control knob turned fully clockwise for battery operation, **S3(B), S5(B)** and **S7(B)** close. In the "Off" position of the control all the switches open.

Filament Current Adjustment.—Connect D.C. milliammeter in series with filament lead to pin 7 of **V4** and adjust **R21** for a meter reading of 22mA.

Model 303.—This is similar to the 202 but is designed to operate from all-dry batteries only. Except for the omission of the mains-operated power supply circuit and for the parallel connection of the valve filaments, the 303 employs a similar circuit to the 202. Other differences between the 303 and the 202 are as follows: **C2** is 400pF; **R1** is 1MΩ; **R8** is 4.7MΩ; **R14** is 4.7MΩ; **C31** is 8μF; **R17** is 4.7MΩ, and is returned to H.T. negative battery connection, which in turn is connected to chassis via a 470Ω resistor.

A three-position battery on/off switch is fitted, breaking the H.T. positive and L.T. positive battery circuits. In the third position of the switch, the battery supply to one side of **V4** filament is disconnected, giving battery economy.

Batteries (Model 202).—Those recommended by

(*Continued col.* 1 *overleaf*)

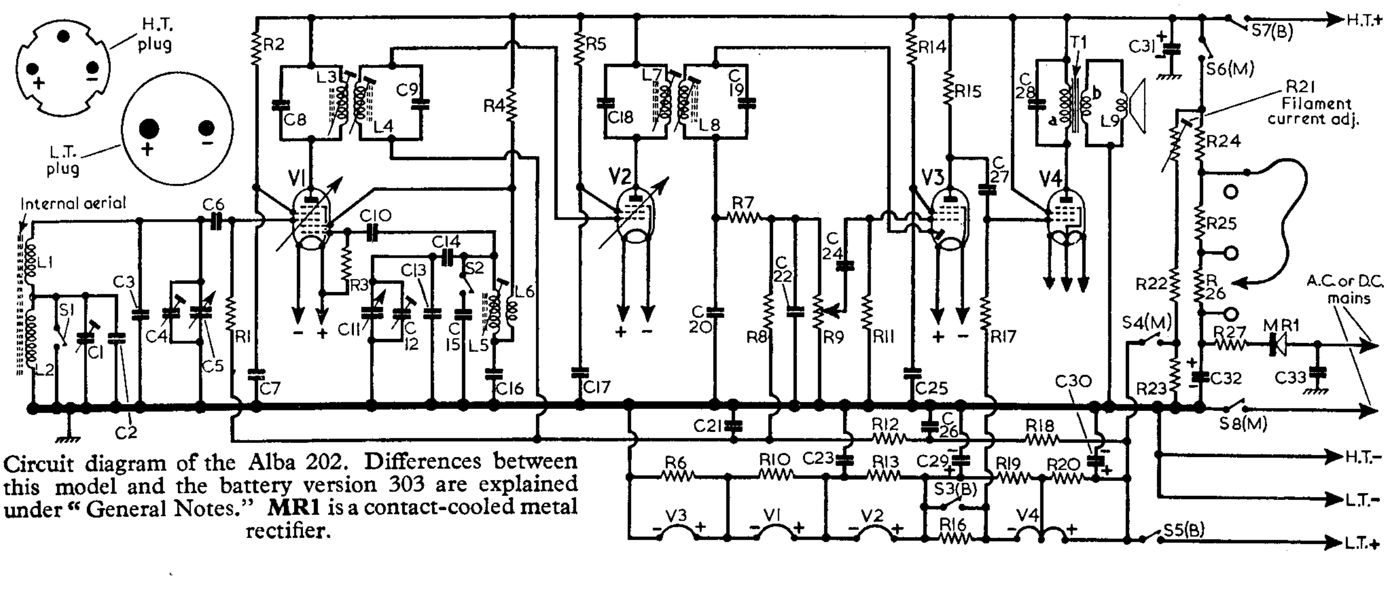
COMPONENT VALUES AND LOCATION

Capacitors		
C1	60pF	C2
C2	480pF	C2
C3	15pF	B1
C4	35pF	C1
C5[1]	523pF	C1
C6	100pF	D4
C7	0·05μF	E3
C8	100pF	D3
C9	100pF	D3
C10[2]	190pF	D4
C11[1]	523pF	C2
C12	35pF	C2
C13	25pF	C2
C14	665pF	C2
C15	665pF	C2
C16	0·003μF	C2
C17	0·05μF	E4
C18	100pF	F3
C19	100pF	F3
C20	100pF	F4
C21	0·05μF	B2
C22	100pF	B2
C23	0·1μF	B2
C24	0·01μF	F3
C25	0·05μF	G4
C26	0·05μF	B2
C27	0·01μF	G4
C28	0·005μF	A2
C29	100μF	A2
C30	25μF	B2
C31	32μF	E4
C32	16μF	E4
C33	0·02μF	A2

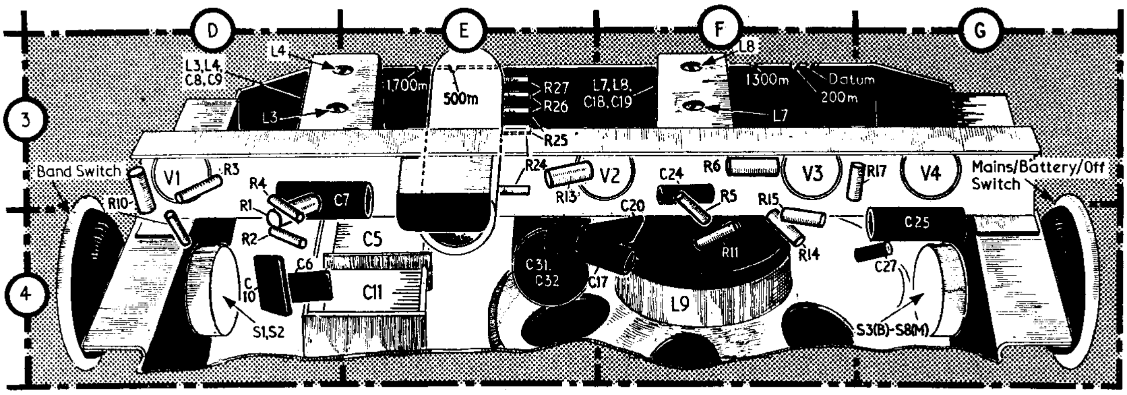
Resistors		
R1	1·5MΩ	D3
R2	120kΩ	D4
R3	27kΩ	D3
R4	33kΩ	D3
R5	33kΩ	F3
R6	100Ω	F3
R7	22kΩ	B2
R8	1·5MΩ	B2
R9	2MΩ	A1
R10[3]	76·7Ω	D3
R11	10MΩ	F4
R12	3·3MΩ	B2
R13	100Ω	E3
R14	2·2MΩ	F4
R15	1MΩ	F4
R16	75Ω	A2
R17	2·2MΩ	G3
R18	1·5MΩ	B2
R19	100Ω	B2
R20	560Ω	B2
R21	1kΩ	A2
R22	3·5kΩ	A2
R23	10kΩ	A2
R24	3kΩ	E3
R25	715Ω	E3
R26	715Ω	E3
R27	145Ω	E3

Other Components[4]		
L1	1·0	C1
L2	3·0	A1
L3	10·0	D3
L4	10·0	D3
L5	4·0	C1
L6	2·0	C1
L7	10·0	F3
L8	10·0	F3
L9	3·0	F4
T1 a	600·0	A2
T1 b	—	A2
MR1[5]	—	C2
S1,S2	—	D4
S3(B)-S8(M)	—	G4

[1] Swing value, min. to max. [2] May be 200pF. [3] Two resistors, 100Ω+330Ω, in parallel. May be single 100Ω resistor. [4] Approximate D.C. resistance in ohms. [5] Westinghouse 18RA11161.



Circuit diagram of the Alba 202. Differences between this model and the battery version 303 are explained under "General Notes." **MR1** is a contact-cooled metal rectifier.



Three-quarter rear view of chassis showing the calibration notches on the scale backing plate in E3, F3.

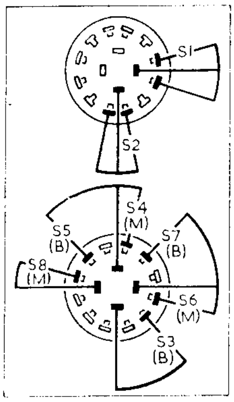
General Notes—*continued*

the manufacturers are: H.T. (90V), Ever Ready B126, Drydex 526, Oldham KL26, Siemax S126, Vidor L5512; L.T. (7.5V); Ever Ready AD38 Drydex H1187, Oldham K782, Siemax 1535, Vidor L5048.

Batteries (Model 303).—The H.T. battery types recommended by the manufacturer are the same as those recommended for model 202 above.

The L.T. battery types recommended are: Ever Ready AD35, Drydex H1184, Oldham K779, Siemax 1529, Vidor L5040.

Drive Cord Replacement.—About 36in of nylon-braided glass yarn is required for a new drive cord, which should be run as shown in the sketch of the tuning drive system at the foot of this column.

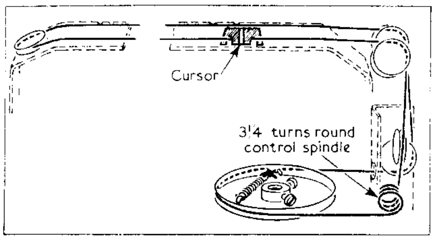


Diagrams of the waveband and mains/battery/off switch units as seen from the rear of an upright chassis.

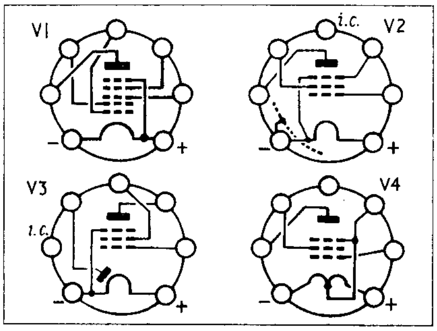
CIRCUIT ALIGNMENT

The manufacturer advises that the following alignment adjustments are carried out with the receiver operating from batteries. If, however, the receiver is operated from the mains, it should be connected so that the chassis is at mains earth potential, and isolating capacitors should be used in the signal generator output leads.

1. —Connect output of signal generator, via an 0.1μF capacitor in the live lead, between chassis and control grid (pin 6) of **V1**.
2. —Feed in a 470kc/s signal and adjust the cores of **L8** (F3), **L7** (F3), **L4** (E3) and **L3** (E3) for maximum output.
3. —Repeat the adjustments in step 2 until no further improvement results.
4. —Turn gang to minimum capacitance and check that the cursor coincides with the datum notch on the scale backing plate (location F3).



Sketch of the tuning drive system as seen from the front of an upright chassis.



Diagrams of the valve base connections.

5. —Connect output of signal generator to a single-turn loop of wire of about 6in diameter and place the loop near the internal aerial.
6. —Switch receiver to M.W. and tune it to 500m calibration notch on backing plate (location E3). Feed in a 600kc/s signal and adjust the core of **L5** (C1) for maximum output. Adjust the inductance of **L1** (B1) for maximum output by softening the wax which seals the coil former to the ferrite rod, and sliding the coil along the rod.
7. —Tune receiver to 200m notch on backing plate (location F3). Feed in a 1,500kc/s signal and adjust **C12** (C1) and **C4** (C1) for maximum output. Repeat these adjustments, and those in step 6, until no further improvement results.
8. —Switch receiver to L.W. and tune it to 1,700m notch on backing plate (location E3). Feed in a 176.4kc/s signal and adjust the inductance of **L2** (A1) for maximum output by softening the wax which seals the coil former to the ferrite rod, and sliding the coil along the rod.
9. —Tune receiver to 1,300m notch on backing plate, feed in a 320kc/s signal and adjust **C1** (C2) for maximum output. Repeat this adjustment, and those in step 8, until no further improvement results.

VALVE ANALYSIS

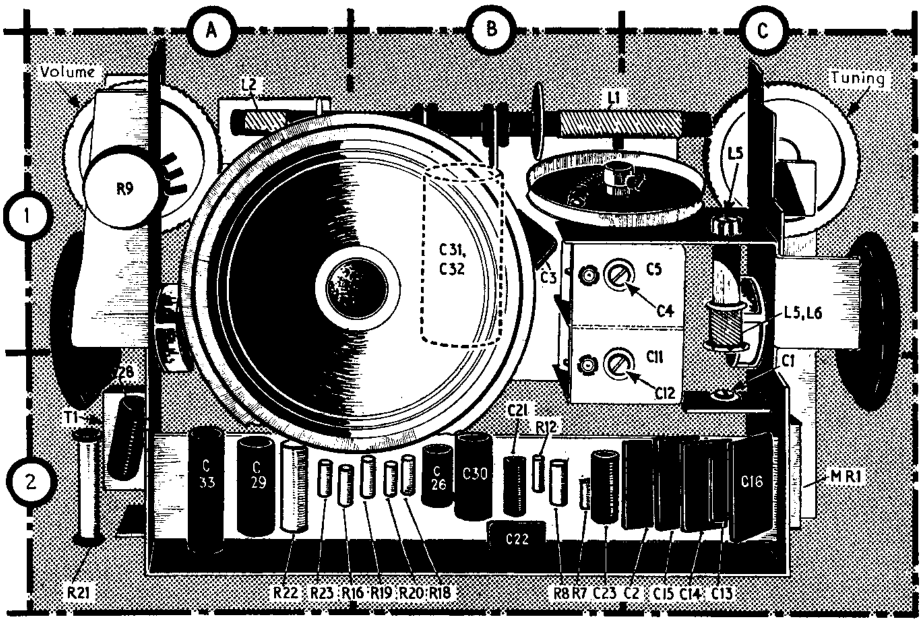
Valve voltages given in the table below are those derived from the manufacturer's information. They were measured on the 10V and 100V ranges of a Model 7 Avometer, with the receiver operating from A.C. mains of 235V, 50c/s and its voltage adjustment set to the correct tapping. Chassis was the negative connection in every case.

Valve	Anode V	Screen V	Filament V
V1 DK96	90·0 Oscillator 30·0	25·0	2·5[1]
V2 DF96	90·0	53·0	3·6[1]
V3 DAF96	3·5	1·5	1·3[1]
V4 DL96	82·0	90·0	7·5[1]
MR1 18RA11161[2]	235·0[3]	—	—

[1] *Measured at pin 7 on valve holder with* **R21** *adjusted to give a filament current of 22mA (measured with milliammeter connected in series with lead to pin 7 of* **V4***).*

[2] *Westinghouse.*

[3] *A.C. reading. Cathode 255V, 37mA.*



Front illustration of chassis. The side controls are identified in the rear view.

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